REP 1994-122

1994. ABSTRACT No. 82. Page 15 *in* SETAC 15th Annual Meeting (October 30-November 3, 1994, Denver, Colorado)

82 Comparisons of Lethal and Sublethal Toxicity Assay Endpoints in Albino Mice and Coturnix Quail. P. J. Savarie and E. W. Schafer, Jr., USDA/APHIS/ADC, Denver Wildlife Research Center, Denver, CO. Tucker and Leitzke (Pharmacol. Ther. 6:167-220) stated that the median lethal dose (LD50) of chemicals for fish and wildlife species was generally never more than 6 times greater than the median effective dose (ED50) of any known sublethal parameter. This statement was defined as the ratio LD50/ED50 and has been subsequently called the "X-factor". In the present study, we measured 7-day acute oral LD50s and 2 sublethal ED50 parameters (1 to 4-day reductions of food and water consumption), in albino mice and coturnix quail. Twenty-five chemicals were tested with a minimum of 4 doses/chemical plus control (n=6/dose). The greatest reduction in food and/or water consumption occurred 1 day postdosing in both species, but only 20% of the chemicals tested in mice affected food and/or water consumption beyond 2 days. In contrast, 68% of the chemicals tested in quail reduced the consumption of food and/or water for 3 to 4 days. We calculated 352 X-factors. In mice, 60 (58%) were food X-factors and 43 (42%) were water X-factors. In quail, 148 (60%) were food X-factors and 101 (40%) were water X-factors. The percentage of X-factors less than or equal to 6 for mouse food reduction, mouse water reduction, quail food reduction, and quail water reduction were 91%, 92%, 86%, and 82%, respectively. These data appear to support the 6X-factor hypothesis for behavioral effects in mice and quail.